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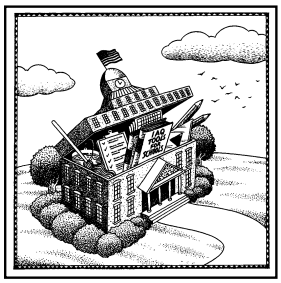
EPA

CASE STUDY

OKALOOSA COUNTY SCHOOL DISTRICT

Fort Walton Beach, Florida

Indoor Air Quality



Tools for Schools

In 1992, Okaloosa County School District officials began receiving complaints about dizziness, shortness of breath, and headaches from students and staff at a rural school in the northern part of the county. Public concerns were raised when the media became involved in the situation. Over the next several years, stories were written and broadcast about the indoor air quality (IAQ) health hazards associated with this school, including a segment on *60 Minutes* and negative press coverage from several Florida news stations.

These events led School Board members to realize that the District needed a proactive, organized process for evaluating and managing IAQ in schools district-wide.

Approach—Project Description

School District Description

Okaloosa County School District (OCSD), located in Fort Walton Beach on Florida's panhandle, has 39 schools with 31,000 students ranging from pre-kindergarten to vocational adult education. More than 1,900 teachers serve these students.

"I first ordered the IAQ TfS Kit because it gave me a legal position to stand on. With the impending lawsuits from other schools in our county, I knew the TfS Kit would help provide me with options."

-Dr. Bill Smith Program Director of Facilities, Okaloosa County School District

IAQ Committee

Dr. Bill Smith, Program Director of Facilities, served as the District's IAQ Coordinator. The well-rounded IAQ Team included two principals, a maintenance associate, a bus driver, a member of the District's safety department, and representatives from the Occupational Safety and Health Administration (OSHA), the Florida Health Department, and each gas and electric utility serving the District. Meeting quarterly, they sought to:

- Oversee the district's IAQ program; and
- Develop a forum for school occupants to alert the Team of IAQ problems.

In addition, the district hired two private consultants—one mechanical engineer and one industrial hygienist—to assist in identifying problem areas. Although not officially members of the IAQ committee, the private consultants were employed by Okaloosa to work very closely with the committee through annual contracts of up to three years. When issues and concerns arose through the IAQ committee, the industrial hygienist and mechanical engineer were consulted before a solution was implemented. The committee developed an IAQ plan in 1995.

In 1996, the Okaloosa County School Board reviewed and adopted EPA's *IAQ Tools for Schools (IAQ TfS)* Program district wide, based on the recommendation of the district's IAQ committee. Although many of the strategies outlined in the *IAQ TfS* Kit were already in place, its adoption provided additional education and served as the missing piece the district needed to complete its IAQ program for their schools, bringing credibility and structure to an efficient IAQ program. The committee found and used valuable information in the Kit's checklists, IAQ Coordinator Guide, and sample letters.

Problem Identification

The first signs of IAQ problems were the health issues and media crisis at one rural school. Concerned that the occupants' symptoms (dizziness, shortness of breath and headaches) were caused by the installation of a new roof coating on the school, district officials adjusted the spraying schedule so that the roof coating was not applied during school operating hours.

The IAQ committee initiated a process to perform walkthrough evaluations of each school. Information gathered from these walkthroughs became the basis for prioritizing schools for IAQ upgrades.

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"The IAQ TfS Kit outlines an organized regimented program that also provides credibility."

-Dr. Bill Smith Program Director of Facilities, Okaloosa County School District

A major problem that was found consistently in all of the schools in the district was humidity control. Old and poorly maintained equipment made controlling the already high Florida humidity much more challenging. Because of the treatment of outside air to combat humidity, schools in Florida find it more difficult to adhere to national standards for fresh air intake than do schools in states with lower humidity.

Each year since the mid-1990s, OCSD had been replacing faulty or old equipment with new equipment in an attempt to meet American Society for Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standards for fresh air, but was failing to meet these standards. Nationally recognized as the minimum, ASHRAE standards for fresh air intake are the same for all schools nationwide. From 1995 to 1997, the facilities office developed design criteria for HVAC systems to improve the indoor air of the district's new schools and to provide guidelines as systems were replaced. Short-term solutions for OCSD included the use of portable dehumidifiers.

Using the checklists found in the *IAQ TfS* Kit as guidelines, the IAQ committee developed a customized IAQ form to be completed by school occupants, which has proven very useful in alerting the Facilities and Maintenance (F&M) department to IAQ problems. Teachers and staff members complete short forms and submit them to the principal for signature, who then passes them on to the F&M department. After discussing the problem with the individual who initially completed the form, Dr. Smith evaluates the problem area and notes proposed actions on the request form. The district F&M department is responsible for fixing the problem. In all cases where a complaint is raised through an IAQ form, the IAQ Team follows up with an interview and a site visit after which proposed actions are developed.

Through the use of these IAQ forms, district-wide occurrences of allergy irritation, unpleasant odors, and mold and mildew growth have been uncovered. In one instance, a teacher filled out an IAQ form alerting the district of odors and mildew in her classroom, and noted that the air was frequently off in the summer and occasionally during the week when class was in session. As it happened, a new chiller was scheduled for this school to resolve airflow problems. After an interview and site visit, the room was throughly cleaned and, when the new chiller was installed, the problems were resolved.

Parents are also welcome to submit IAQ forms. One parent submitted a request form regarding her second-grade child who had been sick for quite some time. This child was taking five different medications for allergy and asthma problems. The parent specifically addressed the issue of mold in her child's classroom. Within a few weeks, interviews with the parent and the child's doctor were conducted, as well as a site visit to the classroom. The classroom was throughly cleaned.

Lessons Learned

Short-Term Solutions

Once the decision was made to pursue healthy IAQ by creating an IAQ committee and a proactive plan, all 39 schools were prompted to begin implementing the *IAQ TfS* Kit. Dr. Smith ordered Kits for each school's site administrator, usually the school principal. To follow up, Dr. Smith met personally with each site administrator to discuss implementation of the Kit and specific IAQ issues that were discovered and being addressed at that particular school.

District officials found that, for their situation, having a district IAQ committee with support from each site administrator proved to be the most efficient method for IAQ implementation. IAQ forms are taken very seriously, and all complaints are considered real. Having an official IAQ form and personal interview with the individual who completed the form allows for efficient follow-up.

To help control IAQ, the district established design and renovation criteria to make sure IAQ measures were implemented consistently in all schools. Following are examples of these criteria:

- Using 2x2 foot ceiling tiles instead of 2x4. The larger ceiling tiles tend to sag, creating areas for mold and mildew penetration and accumulation.
- Using tiling in all hallways, high-traffic areas, and densely populated schools, rooms, or classrooms in place of carpet. Carpet is too hard to keep clean in these areas.

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- Using vinyl composition tile (VCT) instead of regular vinyl. VCT provides a tighter seal and allows the replacement of individual tiles.

Smaller IAQ issues are handled on a case-by-case basis.

The number of complaints (related to both health and faulty equipment) in the district's schools has dropped dramatically from 75 in 1994 to fewer than fifteen in 1999.

Long-Term Practices and Policies

To ensure good IAQ, district-wide evaluations are conducted annually by service engineers, plumbers, and electricians who are assigned to assess each school. Their evaluations identify preventive measures, IAQ problems, and solutions. Their evaluations also serve as a means to specify the budgets for necessary improvements in each school.

Over the last six years, OCSD has made significant strides to ensure a healthy learning and working environment for students and staff. A formal process is in place to identify, prevent, and resolve IAQ problems district-wide, and investments have been made to fund major school renovations, including replacement and repair of HVAC components such as boilers and chillers. The Okaloosa County School Board and Superintendent agree that their IAQ program has proven beneficial and that the *IAQ TfS* Kit continues to be an invaluable tool for educating and ensuring a healthy environment for students and staff.

OCSD was among the first school districts to receive the National *Indoor Air Quality Tools for Schools* Excellence Award in 2000.

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